

IN THE CLAIMS:

1. (Currently Amended) A method for managing a plurality of cachable entities, comprising the steps of:

analyzing program code to determine if there is at least one statement which may affect affects a desirability of performing at least one cache transaction; and

determining the desirability of performing the at least one cache transaction based on a probability that the at least one statement will execute.

~~performing the at least one cache transaction if it is desired.~~

2. (Original) The method of claim 1, wherein the desirability of performing the at least one cache transaction is based on one of a frequency of access of at least one cachable entity, a size of at least one cachable entity, a time to one of fetch and materialize at least one cachable entity, a lifetime of at least one cachable entity, and a combination thereof.

3. (Original) The method of claim 1, wherein the at least one statement is a statement that modifies a value of at least one cachable entity, and wherein the desirability is based on an expected lifetime of the at least one cachable entity.

4. (Currently Amended) The method of claim 41, wherein the step of performing at least one cache transaction comprises one of storing at least one cachable entity in a cache, invalidating at least one cachable entity stored in a cache, updating at least one cachable entity stored in a cache, and a combination thereof.

5. (Original) The method of claim 1, further comprising the step of augmenting the program code with additional code to assist in determining the desirability of performing the at least one cache transaction.

6. (Currently Amended) The method of claim 41, further comprising the step of augmenting the program code with additional code to perform the at least one cache transaction.

7. (Original) The method of claim 4, wherein at least one of the step of invalidating the at least one cachable entity stored in the cache and the step of updating the at least one cachable entity stored in the cache comprise the step of performing data update propagation (DUP).

8. (Original) The method of claim 1, wherein the at least one statement is one of source code, assembly code, machine code, and structured query language (SQL) code.

9. (Original) The method of claim 8, wherein the at least one statement in the SQL code includes at least one SET statement.

10. (Original) The method of claim 1, wherein the cachable entities include query results.

11. (Original) The method of claim 1, wherein the analyzing step comprises the steps of: detecting at least one query statement for retrieving at least one of the cachable entities from a cache;

generating a query key format; and

augmenting the program code with additional code for calculating a query key in accordance with the query key format.

12. (Currently Amended) The method of claim 11, ~~wherein the step of~~ further comprising performing at least one cache transaction, wherein performing comprises the steps of:

executing the augmented code to calculate the query key;

searching the cache using the query key; and

retrieving at least one cachable entity stored in the cache if the cachable entity corresponds to the query key.

13. (Original) The method of claim 12, further comprising the steps of:
processing the at least one query statement to retrieve at least one of the plurality of cachable entities, if there are no cachable entities in the cache which correspond to the query key;
storing the at least one retrieved cachable entity in the cache using the query key; and
associating at least one dependency with the at least one retrieved cachable entity.

14. (Original) The method of claim 1, wherein the at least one statement is a type that one of creates at least one cachable entity, deletes at least one cachable entity, and modifies a value of at least one cachable entity, wherein the analyzing step comprises the steps of:

generating an invalidation key format in accordance with the type of the at least one statement; and

augmenting the program code with additional code for calculating an invalidation key in accordance with the generated invalidation key format.

15. (Currently Amended) The method of claim 14, ~~wherein the step of~~ further comprising performing at least one cache transaction, wherein performing comprises the steps of:

executing the augmented code to calculate the invalidation key; and

invalidating at least one cachable entity stored in the cache that corresponds to the invalidation key.

16. (Original) The method of claim 15, wherein the step of invalidating at least one cachable entity comprises one of purging the cachable entity from the cache, purging the cachable entity from the cache and repopulating the cache, and updating the cache.

17. (Currently Amended) The method of claim 41, wherein the step of performing at least one cache transaction comprises the step of initializing a cache.

18. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for managing a plurality of cachable entities, the method steps comprising:

analyzing program code to determine if there is at least one statement which may affect affects a desirability of performing at least one cache transaction; and

determining the desirability of performing the at least one cache transaction based on a probability that the at least one statement will execute.

~~performing the at least one cache transaction if it is desired.~~

19. (Original) The program storage device of claim 18, wherein the desirability of performing the at least one cache transaction is based on one of a frequency of access of at least one cachable entity, a size of at least one cachable entity, a time to one of fetch and materialize at least one cachable entity, a lifetime of at least one cachable entity, and a combination thereof.

20. (Original) The program storage device of claim 18, wherein the at least one statement is a statement that modifies a value of at least one cachable entity, and wherein the desirability is based on an expected lifetime of the at least one cachable entity.

21. (Currently Amended) The program storage device of claim ~~45~~ 18, wherein the instructions for performing at least one cache transaction include instructions for one of storing at least one cachable entity in a cache, invalidating at least one cachable entity stored in a cache, updating at least one cachable entity stored in a cache, and a combination thereof.

22. (Original) The program storage device claim 18, further including instructions for augmenting the program code with additional code to assist in determining the desirability of performing the at least one cache transaction.

23. (Currently Amended) The program storage device of claim ~~45~~ 48, further including instructions for augmenting the program code with additional code to perform the at least one cache transaction.

24. (Original) The program storage device of claim 21, wherein the instructions for at least one of invalidating the at least one cachable entity stored in the cache and updating the at least one cachable entity stored in the cache include instructions for performing data update propagation (DUP).

25. (Original) The program storage device of claim 18, wherein the at least one statement is one of source code, assembly code, machine code, and structured query language (SQL) code.

26. (Original) The program storage device of claim 25, wherein the at least one statement in the SQL code includes at least one SET statement.

27. (Original) The program storage device of claim 18, wherein the cachable entities include query results.

28. (Original) The program storage device of claim 18, wherein the instruction for performing the analyzing step include instructions for performing the steps of:

detecting at least one query statement for retrieving at least one of the cachable entities from a cache;

generating a query key format; and

augmenting the program code with additional code for calculating a query key in accordance with the query key format.

29. (Currently Amended) The program storage device of claim 28, ~~wherein the further comprising instructions for performing at least one cache transaction, wherein the instructions for performing at least one cache transaction~~ include instructions for performing the steps of:

executing the augmented code to calculate the query key;
searching the cache using the query key; and
retrieving at least one cachable entity stored in the cache if the cachable entity corresponds to the query key.

30. (Original) The program storage device of claim 29, further including instructions for performing the steps of:

processing the at least one query statement to retrieve at least one of the plurality of cachable entities, if there are no cachable entities in the cache which correspond to the query key;
storing the at least one retrieved cachable entity in the cache using the query key; and
associating at least one dependency with the at least one retrieved cachable entity.

31. (Original) The program storage device of claim 18, wherein the at least one statement is a type that one of creates at least one cachable entity, deletes at least one cachable entity, and modifies a value of at least one cachable entity, wherein the instructions for performing the analyzing step include instructions for performing the steps of:

generating an invalidation key format in accordance with the type of the at least one statement; and

augmenting the program code with additional code for calculating an invalidation key in accordance with the generated invalidation key format.

32. (Currently Amended) The program storage device of claim 31, ~~wherein the~~ further comprising instructions for performing the at least one cache transaction, wherein the instructions for performing at least one cache transaction include instructions for performing the steps of:

executing the augmented code to calculate the invalidation key; and
invalidating at least one cachable entity stored in the cache that corresponds to the invalidation key.

33. (Original) The program storage device of claim 32, wherein the instructions for invalidating at least one cachable entity include instructions for performing one of purging the cachable entity from the cache, purging the cachable entity from the cache and repopulating the cache, and updating the cache.

34. (Currently Amended) The program storage device of claim ~~45~~ 48, wherein the instructions for performing the at least one cache transaction include instructions for initializing a cache.

35. (Currently Amended) A system for managing a plurality of cachable entities, comprising:

a program analyzer to analyze program code and determine if there is at least one statement which may affect ~~affects~~ a desirability of performing at least one cache transaction;

the program analyzer determining the desirability of performing the at least one cache transaction based on a probability that the at least one statement will execute; and

a cache manager for performing the at least one cache transaction if it is ~~desired~~ determined to be desirable.

36. (Original) The system of claim 35, wherein the desirability of performing the at least one cache transaction is based on one of a frequency of access of at least one cachable entity, a size of at least one cachable entity, a time to one of fetch and materialize at least one cachable entity, a lifetime of at least one cachable entity, and a combination thereof.

37. (Original) The system of claim 35, wherein the at least one detected statement is a statement that modifies a value of at least one cachable entity, and wherein the desirability is based on an expected lifetime of the at least one cachable entity.

38. (Original) The system of claim 35, wherein the cache manager performs one of storing at least one cachable entity in the cache, invalidating at least one cachable entity stored in the cache, updating at least one cachable entity stored in the and a combination thereof.

39. (Original) The system of claim 35, wherein the cache manager augments the program code with additional code to assist in determining the desirability of performing the at least one cache transaction.

40. (Original) The system of claim 35, wherein the cache manager augments the program code with additional code to perform the at least one cache transaction.

41. (New) The method of claim 1, further comprising performing the at least one cache transaction if it is determined to be desirable.

42. (New) The method of claim 1, further comprising determining said probability based on a likelihood of a value of a cachable entity changing.

43. (New) The method of claim 42, further comprising caching a value of said cachable entity, if said probability is less than or equal to a threshold.

44. (New) The method of claim 42, further comprising invalidating or updating a value of said cachable entity, if said probability is greater than or equal to a threshold.

45. (New) The program storage device of claim 18, further comprising instructions for performing the at least one cache transaction if it is determined to be desirable.

46. (New) The program storage device of claim 18, further comprising instructions for determining said probability based on a likelihood of a value of a cachable entity changing.

47. (New) The program storage device of claim 46, further comprising instructions for caching a value of said cachable entity, if said probability is less than or equal to a threshold.

48. (New) The program storage device of claim 46, further comprising instructions for invalidating or updating a value of said cachable entity, if said probability is greater than or equal to a threshold.